CLAIMS

1. An in-vitro gene-modified T cell, obtained by stimulating a T cell of a graft recipient in-vitro with a cell of a graft donor or with a cell that expresses a dominant MHC molecule, and simultaneously or later, transfecting with a therapeutic gene using gene transfer.

2. The in-vitro gene-modified T cell according to Claim 1, wherein said T cell is an alloreactive T cell.

3. The in-vitro gene-modified T cell according to Claim 1 produced by:

a) culturing a cell line which produces a retrovirus that is suitable for gene transfer and expresses a therapeutic gene;

b) isolating a lymphocyte from whole blood, the spleen or a lymph node;

wherein said lymphocyte is an irradiated donor T cell, an irradiated cell which expresses the dominant MHC molecule or a recipient T cell; and

c) either co-culturing a mixed lymphocyte culture and the cell line, or exclusively culturing a supernatant containing retrovirus which is used for said transfecting.

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4. The in-vitro gene-modified T cell according to Claim 3, wherein said retrovirus is a moloney murine leukemia virus or a lentivirus.

5. The in-vitro gene-modified T cell according to Claim 1, produced by isolating a lymphocyte from whole blood, the spleen, or a lymph node;

wherein said lymphocyte is an irradiated donor T cell, an irradiated cell which ex-

wherein an allospecific T-cell produced using a mixed lymphocyte culture is incubated with a liposome formulation containing the plasmid with the therapeutic gene or treated with a gene gun.

6. The in-vitro gene-modified T cell according to Claim 1, wherein said therapeutic gene is a cytokine, an interleukin, a notch-ligand/receptor, or a cell-protective gene.

7. The in-vitro transfected T cell according to Claim 6, wherein said therapeutic gene is IL-4, IL-10, viral IL-10, IL-12p40, IL-13, hemoxygenase-1, CTLA-4, hSerrate-1, hDelta-1, notch 1-4, bcl-2, bcl-xl, or bag-1.

8. A process for the generation of a gene-modified T cell, comprising:

stimulating a T cell of a graft recipient in-vitro with a cell of a graft donor or with a cell which expresses a dominant MHC molecule; and

concurrently or later transfecting an immuno-modulatory therapeutic gene via gene-transfer.

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9. The process according to Claim 8, wherein the T cell is an alloreactive T cell.

10. The process according to Claim 8, wherein:

a) culturing a cell line which produces a retrovirus that is suitable for gene transfer and expresses a therapeutic gene;

b) isolating a lymphocyte from whole blood, the spleen or a lymph node;

wherein said lymphocyte is an irradiated donor T cell, an irradiated cell which expresses the dominant MHC molecule or a recipient T cell; and

c) either co-culturing a mixed lymphocyte culture and the cell line, or exclusively culturing a supernatant containing retrovirus which is used for said transfecting.

11. The process according to Claim 10, wherein the retrovirus is a moloney murine leukemia virus or a lentivirus.

12. The process according to Claim 8, wherein lymphocytes are isolated from whole blood, the spleen, or a lymph node;

wherein said lymphocyte is an irradiated donor T cell, an irradiated cell which expresses the dominant MHC molecule, or a recipient T cell;

wherein an allospecific T-cell produced using a mixed lymphocyte culture is incubated with a liposome formulation containing the plasmid with the therapeutic gene or treated with a gene gun.

13. The process according to Claim 8, wherein said therapeutic gene is a cytokine, an interleukin, a notch-ligand/receptor, or a cell-protective gene.

14. The process according to Claim 13, wherein said therapeutic gene is IL-4, IL-10, viral IL-10, IL-12p40, IL-13, hemoxygenase-1, CTLA-4, hSerrate-1, hDelta-1, notch 1-4, bcl-2, bcl-xl, or bag-1.

15. A method of using the in-vitro gene-modified T cell according to Claim 1, comprising:

applying in-vivo said in-vitro gene-modified T cell to an allogeneic graft, thereby preventing an allogeneic graft rejection.

16. The method according to Claim 15, wherein a tolerance towards said allogeneic graft is induced and/or maintained.

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17. The method according to Claim 15, wherein a T cell of a graft recipient is stimulated.

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